

What is claimed is:

1           1.     A method for an intermediary selectively coupling an external network and  
2     an internal network to dynamically generate filter rules to facilitate establishing an end to  
3     end secure session connection between a first device on the internal network and a  
4     second device of the external network, the method comprising:

5           receiving a secure session establishment request by the second device on the  
6     external network to establish a secure communication session with the first device on  
7     the internal network;

8           forwarding the secure session establishment request to the first device;

9           monitoring the internal network for an approval or disapproval acknowledgement  
10    by the first device for the secure session establishment request; and

11          if an approval authentication acknowledgement is monitored, then configuring a  
12    first filter rule of the intermediary to allow communication between the first and second  
13    devices through the intermediary.

14          2.     The method of claim 1, further comprising:

15          determining a presence advertisement for the first device has been received  
16    before forwarding the secure session establishment request to the first device.

17          3.     The method of claim 2 wherein the presence advertisement is delivered in  
18    accordance with the UPnP Simple Service Discovery Protocol (SSDP).

19          4.     The method of claim 1, further comprising:

1 receiving network traffic from the second device corresponding to the second  
2 device requesting a UPnP Device Description Document from the first device.

3 5. The method of claim 1, further comprising:  
4 receiving a service request from the second device for the first device, the  
5 service request having an associated communication port for performing the service;  
6 determining the service request identifies a service advertised by the first device  
7 in a device description document; and  
8 configuring a second filter rule to allow communication between the first device  
9 and the second device using the associated communication port.

10 6. The method of claim 1, further comprising:  
11 providing the second device with an indicia for use by the second device in  
12 establishing a communication link to the first device.

13 7. The method of claim 6, wherein the indicia is a selected one of a globally  
14 routable Internet Protocol (IP) address, or an internal network address non-routable on  
15 the external network.

16 8. The method of claim 1, wherein communication within the internal network  
17 is in accord with an IPv6 compatible Internet Protocol (IP).

18 9. The method of claim 1, further comprising:  
19 retrieving an Access Control List (ACL) from the first device, the ACL including  
20 an identification of devices authorized to establish communication sessions; and

determining based at least in part on the ACL the second device is authorized to establish the secure communication session with the first device before forwarding the secure session establishment request to the first device.

10. The method of claim 1, further comprising:  
receiving network traffic from the second device corresponding to a previous secure communication session established when the second device was previously on the internal network; and  
responding to said network traffic with an error such that the second device attempts to re-establish a secure communication session from the external network.

11. The method of claim 1, further comprising:  
establishing the end to end secure session connection between the first device on the internal network and the second device of the external network in a single end to end secure session connection between said first and second devices.

12. A method for communicating with a device by way of an intermediary selectively coupling an external network and an internal network, comprising:  
receiving a presence advertisement for the device;  
storing a network address associated with the first device;  
determining services offered by the device; and  
while on the external network, issuing a secure communication initiation request to the device via the intermediary.

13. The method of claim 12, wherein the intermediary is configured to:

1 forward the request to the device;  
2 monitor for an approval or disapproval authentication acknowledgement to the  
3 request; and  
4 configure a filter of the intermediary to allow communication with the device if an  
5 approval authentication acknowledgement is received.

6 14. The method of claim 13, wherein the intermediary is further configured to  
7 configure the filter to block communication with the device is a disapproval  
8 authentication acknowledgement is received.

9 15. The method of claim 12 wherein the presence advertisement is received  
10 while on the internal network.

11 16. The method of claim 12, wherein while on the internal network, the  
12 method further comprising requesting a description of services offered by the device.

13 17. The method of claim 16, wherein the description of services is requested  
14 from the intermediary.

15 18. The method of claim 12, wherein while on the external network, the  
16 method further comprising requesting a description of services offered by the device.

17 19. The method of claim 18, wherein the description of services is requested  
18 from the intermediary.

19 20. The method of claim 12, further comprising:  
20 receiving an approval authentication acknowledgement to the request; and

responsive to the approval, requesting a service of the device.

21. The method of claim 12, wherein the network address associated with the first device is a globally unique network address having an address portion identifying the intermediary.

22. The method of claim 12, wherein a traveling control point performs the method for communicating with the device.

23. A system of devices communicatively coupled with an internal network and an external network via a gateway, comprising:  
a first device, communicatively coupled to the internal network, offering services;  
a second device selectively coupled with the internal and external networks, the second device seeking a service of the first device, wherein when requesting the service, said requesting includes sending a secure communication initiation request to the first device to facilitate establishing a secure communication session with the first device; and  
an intermediary selectively communicatively coupling the first and second devices, wherein the intermediary is configured to receive a secure communication initiation request from the second device over the external network and forward the request to the first device.

24. The system of claim 23, wherein the intermediary is further configured to monitor the first device for an approval or disapproval authentication acknowledgement for the request, and to configure a filter of the intermediary controlling communication

1 over the first network from the first device based at least in part on a monitored  
2 authentication acknowledgement.

3 25. The system of claim 23, wherein the first device communicates with the  
4 second device in accord with the UPnP Security Protocol.

5 26. The system of claim 23, wherein the secure communication initiation  
6 request corresponds to a UPnP Set Session Key (SSK) request.

7 27. An article comprising a machine-accessible media having associated data  
8 for an intermediary selectively coupling an external network and an internal network to  
9 dynamically generate filter rules to facilitate establishing an end to end secure session  
10 connection between a first device on the internal network and a second device of the  
11 external network, wherein the data, when accessed, results in the intermediary  
12 performing:

13 receiving a secure session establishment request by a second device on the  
14 external network to establish a secure communication session with a first device on the  
15 internal network;

16 forwarding the secure session establishment request to the first device;

17 monitoring the internal network for an approval or disapproval acknowledgement  
18 by the first device for the secure session establishment request; and

19 if an approval authentication acknowledgement is monitored, then configuring a  
20 first filter rule of the intermediary to allow communication between the first and second  
21 devices through the intermediary.

1           28.     The article of claim 27, wherein the data further includes data, which  
2     when accessed, results in the intermediary performing:

3           determining a presence advertisement for the first device has been received  
4     before forwarding the secure session establishment request to the first device.

5           29.     The article of claim 27, wherein the data further includes data, which  
6     when accessed, results in the intermediary performing:

7           receiving a service request from the second device for the first device, the  
8     service request having an associated communication port for performing the service;

9           determining the service request identifies a service advertised by the first device  
10    in a device description document; and

11          configuring a second filter rule to allow communication between the first device  
12    and the second device using the associated communication port.

13          30.     The article of claim 27, wherein the data further includes data, which  
14    when accessed, results in the intermediary performing:

15          providing the second device with an indicia for use by the second device in  
16    establishing a communication link to the first device.

17          31.     The article of claim 27, wherein the data further includes data, which  
18    when accessed, results in the intermediary performing:

19          retrieving an Access Control List (ACL) from the first device, the ACL including  
20    an identification of devices authorized to establish communication sessions; and

1           determining based at least in part on the ACL the second device is authorized to  
2   establish the secure communication session with the first device before forwarding the  
3   secure session establishment request to the first device.

4           32.    An article comprising a machine-accessible media having associated data  
5   for communicating with a device by way of an intermediary selectively coupling an  
6   external network and an internal network, wherein the data, when accessed, results in a  
7   machine performing:

8           receiving a presence advertisement for the device;  
9           storing a network address associated with the first device;  
10          determining services offered by the device; and  
11          while on the external network, issuing a secure communication initiation request  
12   to the device via the intermediary.

13          33.    The article of claim 32, wherein the data further includes data, which when  
14   accessed by the machine, results in the machine performing:  
15          receiving the presence advertisement while on the internal network.

16          34.    The article of claim 32, wherein the data further includes data, which when  
17   accessed by the machine, results in the machine performing, while on the internal  
18   network, requesting a description of services offered by the device.

19          35.    The article of claim 32, wherein the data further includes data, which when  
20   accessed by the machine, results in the machine performing, while on the external  
21   network, requesting a description of services offered by the device.



1           36.     Machine-accessible information for an intermediary selectively coupling an  
2 external network and an internal network embodied in a propagated signal which, when  
3 accessed, results in the intermediary performing:

4           receiving a secure session establishment request by a second device on the  
5 external network to establish a secure communication session with a first device on the  
6 internal network;

7           forwarding the secure session establishment request to the first device;

8           monitoring the internal network for an approval or disapproval acknowledgement  
9 by the first device for the secure session establishment request; and

10          if an approval authentication acknowledgement is monitored, then configuring a  
11 first filter rule of the intermediary to allow communication between the first and second  
12 devices through the intermediary.

13          37.     The propagated signal of claim 36, wherein the machine-accessible  
14 information further includes information, which when accessed, results in the  
15 intermediary performing:

16          receiving a service request from the second device for the first device, the  
17 service request having an associated communication port for performing the service;

18          determining the service request identifies a service advertised by the first device  
19 in a device description document; and

20          configuring a second filter rule to allow communication between the first device  
21 and the second device using the associated communication port.